WATERY Soft Rot Is Very Serious Market Disease of Vegetables

Among the most serious diseases of vegetables are those caused by soil organisms. Watery soft rot is caused by a soil fungus (Sclerotinia) which is more or less common to all trucking regions and is especially destructive, because it can attack such a wide variety of crops. Lettuce, celery, carrots, turnips, cabbage, beans, peas, and practically all of the common vegetables are subject to this disease. A characteristic soft, watery decay is produced in all products and the plants are covered with a white cottony mold. (Fig. 234.) In transit, storage, and on the market badly decayed products actually leak, but there is no disagreeable odor like that produced by many other diseases.

As indicated, this disease originates in the field and is there known by a variety of names, the most common of which are foot rot, Sclerotinia rot, and drop. The fungus does not require wounds for infection and is therefore able to attack almost any part of a plant.

FIGURE 234.—Watery soft rot of carrots

Young plants often die, but if a plant is large and otherwise healthy when attacked, it may keep on growing and make a marketable product. It is these affected plants, however, that decay so badly during transit and marketing. The seriously decayed vegetables are discarded in the grading and packing process, but the products having small decayed spots are often overlooked. Unfortunately, even those with the smallest watery soft-rot spots are sure to suffer great loss before they reach the market. Wet field conditions favor the development of the fungus, and moist surfaces of the plants when packed favor its spread from one plant to another during transit. For example, in hampers of green beans and peas it is often found that the pods are overrun by a great abundance of white cottony mold and large numbers of them are joined together in "nests."

Conditions Influencing Fungus Growth

The fungus causing this disease grows very rapidly at ordinary temperatures and rather fast even at refrigeration temperatures.

Consequently watery soft rot is found causing damage in cars of produce under standard refrigeration. A cold-storage temperature of 32° F. will not entirely stop its development. The fact that watery soft rot continues to develop at low temperatures makes it one of the most serious of storage diseases; in fact, the greatest losses sustained in vegetable produce held in storage, particularly carrots and celery, are caused by it. Fortunately, two of the most valuable storage crops, onions and potatoes, are not affected by this disease. Fortunately, also, a large proportion of the shipments of vegetables susceptible to the disease originate in fields relatively free of it and move to market without serious loss.

The losses that do occur are serious enough, however, so that everything possible should be done to reduce or prevent them. In preparing produce for the market, care should be exercised to see that it is clean and free from disease. Such precautions, combined with careful handling during the harvesting and handling process and good refrigeration in transit, will do much to keep down loss from this disease, although its ability to develop at temperatures of 40° F. or below makes absolute control in transit very difficult if not impossible.

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WEATHER Relationship to Yields Studied in Canada and Argentina

Studies are being conducted by the foreign service of the Bureau of Agricultural Economics to determine the relationship of weather and yields for certain foreign countries. Results obtained to date can not be regarded as final, but they give an indication of the value of such work, and afford a more definite objective basis for judging the current year's yield in certain countries, prior to the release of official estimates.

An analysis of temperature and rainfall data from April through July in its relation to wheat yields in the three western prairie Provinces of Canada—Manitoba, Saskatchewan, and Alberta—indicated a probable crop on the July acreage estimate between 476,000,000 and 552,000,000 bushels for 1928 in those Provinces, or, averaging the two extremes, about 515,000,000. This is based on a multiple correlation measuring the effect of temperatures for April, May, June, and July, and rainfall for the period April to July upon the yields of wheat from 1905–1927. Separate studies made for each Province gave somewhat different relationships between weather and yield in the different Provinces. For the three Provinces, the weather records of 19 stations were used.

A study of the relation of temperature and rainfall to the yield of wheat in Argentina indicates that there is a closer relationship between temperature changes and yield of wheat than between rainfall changes and yield of wheat. During the period 1890–1919, yield of wheat varied between 5 bushels per acre in 1896 and 18 bushels in 1893. Most of the wheat acreage of Argentina lies in the Provinces of Buenos Aires, Cordoba, Santa Fe, Entre Rios, and the Pampa territory. A small part lies outside this zone. In the northern part of Argentina, grain sowing begins in May, progresses southward, and continues as late as mid-August. June and July are the most important months for sowing. Harvest begins in the extreme north